

the amendments to the specification and the remarks presented herein.

The claims in the application are claims 1 to 7, no other claims having been presented. Applicant has noted with pleasure that the Examiner deemed that claim 3 is drawn to allowable subject matter.

The specification was objected to by the Examiner as failing to provide antecedent basis for the limitations of claim 2.

Applicant wishes to point out that page 4 has been amended to provide antecedent basis for claim 2. The amendment to page 4⁵ incorporates the limitations of claim 2 which is an original claim. Therefore, it does not indicate new matter. According to claim 2, the acute angle α at the axis of rotation 19 of the grinding wheel 18 forms with the axis of symmetry 20 of the guide carriage 1 is about 15° and this has now been inserted into the specification on page 4.

Claim 3 was rejected under 35 USC 112, first and second paragraphs, as containing subject matter not described in the specification and as being indefinite. The Examiner pointed out that claim 3 recites "another raceway...approximately a quarter circle cross section for the balls" and according to the Examiner, this raceway was claimed in line 6 of claim 1 and Applicant's

Figure 1 shows only one raceway 11 with a quarter circle cross section and suggested that Applicant recite "a half circle cross section". Claim 3 was also indicated as being indefinite in reciting a quarter circle cross section for the balls in lines 3 and 4.

Applicant respectfully traverses this ground of rejection since it is believed that the claim is correct since Applicant does not intend to recite a half circle cross section but it is correct that the cross section is a quarter circle cross section. Applicant is submitting herewith copies of the drawings of the linear rolling bearing which the inventor submitted with his invention disclosure. This drawing corresponds to Figure 1 of the application and from the drawing, it can be better seen than from Figure 1 that the guide carriage 1, the upper ground raceways 10 situated near the U-crossbar 5 have an approximately quarter circle cross section. This can also be seen from Figure 2 of the application. In Fig. 2, the grinding wheel 18 has such a shape that the raceway 10 as well as the raceway 11 is being ground with a quarter circle cross section. The shape of the grinding wheel 18 can be seen from the additionally enclosed grinding wheel received from the inventor.

The amendment to pages 5 and 6 additionally includes the text of claims 1 and 3. The ground raceway 10 made by grinding has an approximately quarter circle cross section for the balls 3. The

ground raceway 10 of each U-leg 6 of the guide carriage 1 is situated closer to the U-crossbar 5 and each U-leg 6 comprises on the inner surface a second raceway 11 that is situated further away from the U-crossbar 5 and has an approximately quarter circle cross section for the balls 3. Therefore, the limitation of claim 3 has now been inserted into the specification.

This permits a simultaneously grinding both of the raceway 10 situated near the U-crossbar 5 and the raceway 11 situated further from the U-crossbar 5 on the inner surface of one of the U-legs 6 using one part of the grinding wheel 18 and at the same time, a grinding of the stop surface 12 on the outer surface of the other U-leg 6 using another part of the grinding wheel 18. To enable a part of the grinding wheel 18 to be inserted into the carriage cavity 7 and to grind raceways 10 and 11, both the raceways 11 and the guide carriage 1 situated further away from the U-crossbar 5 and at an imaginary connecting plane 21 that extends through the centers of the load bearing balls 3 circulating on the raceways 11 and limits the two U-leg 6 on their underside. Therefore, claim 3 is now adequately illustrated in the specification without the introduction of new matter and withdrawal of these grounds of rejection is requested.

Claims 1, 2 and 4 to 7 were rejected under 35 USC 102 as being anticipated or under 35 USC 103 as being obvious over the Tonogai patent. With respect to claims 1, 2 and 7, the Examiner states

that the Tonogai patent shows a linear rolling bearing comprising a guide carriage with a U-shaped cross section in Figure 8 having a U-crossbar and two U-legs so that the guide carriage forms a carriage cavity and partially surrounds a guide rail while being slidably mounted through balls on two longitudinal sides of the guide rail, each U-leg of the guide carriage having on an inner surface opposing the guide rail a ground raceway with an approximately quarter circle cross section for the balls and stop surface 21 having a retaining contour for a guide member 50 containing the balls B is configured on the guide rail-distal outer surface of each U-leg of the guide carriage. The Examiner deems that the same anticipates Applicant's invention.

Applicant respectfully traverses this ground of rejection since it is deemed that the Tonogai patent neither anticipates or renders obvious Applicant's invention. The Tonogai patent is silent as to a process of grinding the stop surface in the raceway of the U-leg using one grinding wheel and are made in one common work step. Lines 5 to 11 of page 2 of the description of Applicant's application reads as follows:

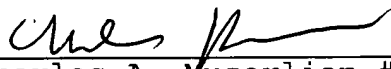
"The publication EPO 318 980 B1 discloses a linear ball bearing having a guide carriage designated as a bearing body that has a leg section with an upper groove with an approximately semi-circular cross section for load bearing balls and a lower groove with an approximately quarter circle cross section for load bearing balls. A drawback of this lies in the continuation of the radius

of the upper groove up to the vertical inner wall of the leg section. This necessarily means that for making the upper groove by grinding a small grinding wheel must be used."

Because of the semi-circular cross section of the upper groove for the load bearing balls, Tonogai is not able to use the grinding wheel corresponding to Applicant's claim 1 which requires that the raceway 1 with an approximately quarter circle cross section for the balls 3 is made by a grinding wheel 18 whose diameter is larger than a diagonal dimension of the carriage cavity and whose axis of rotation 19 is situated outside of the guide carriage 1 and forms an acute angle α with an axis of symmetry 20 of the guide carriage. The advantage obtained by using a grinding wheel having a large diameter was mentioned in the description beginning from the last paragraph of page 1 through line 3 of page 2 wherein it is stated that at the same speed of rotation, a higher peripheral speed is obtained with a grinding wheel having a large diameter rather with a wheel having a small diameter. With a large diameter, a higher grinding performance and a prolongation of the surface life of the wheel is obtained. The rotational speed of the grinding spindle cannot be infinitely increased because this would lead to a destruction of the bearings. This is in no way disclosed by Tonogai and therefore, it is deemed that the same does not anticipate or render obvious Applicant's invention. Therefore, withdrawal of this ground of rejection is requested.

In view of the amendments to the specification and above remarks, it is believed that the claims clearly point out Applicant's patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,
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Enclosures